

2017

## The Silk Road and the origins of Double Entry

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### Recommended Citation

Wang, Jing, "The Silk Road and the origins of Double Entry" (2017). *Faculty of Business - Papers (Archive)*. 1734.

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### Abstract

The paper considers the previous role of the Silk Road in developing the world economy during a period when China according to Marc Polo, China was the greatest trading nation in the world (Latham, 1958). The paper argues that double entry evolved through time rather than through purposeful search. That is the invention was not by chance or even design but developed gradually from necessity. Yamey (1947) argues that change likely takes the form of variations on existing practice and newly evolved techniques resemble the ones previously used. That is a gradual evolutionary process of development. The paper adopts an evolutionary theme as to origins; that is chance and necessity were the drivers of double entry accounting rather than design.

### Keywords

entry, double, silk, origins, road

### Disciplines

Business

### Publication Details

Wang, J. (2017). The Silk Road and the origins of Double Entry. AFAANZ Conference (pp. 1-16).

## **The Silk Road and the origins of Double Entry**

The paper considers the previous role of the Silk Road in developing the world economy during a period when China according to Marc Polo, China was the greatest trading nation in the world (Latham, 1958). The paper argues that double entry evolved through time rather than through purposeful search. That is the invention was not by chance or even design but developed gradually from necessity. Yamey (1947) argues that change likely takes the form of variations on existing practice and newly evolved techniques resemble the ones previously used. That is a gradual evolutionary process of development. The paper adopts an evolutionary theme as to origins; that is chance and necessity were the drivers of double entry accounting rather than design.

The Silk Road was an ancient network of trade routes that were for centuries central to cultural interaction connecting the East and West and stretching from the Korean peninsula to the Mediterranean Sea. The Silk Road as an avenue for traders provided the means of “chance” developments of double entry as traders met and shared ideas. Although silk was certainly the major trade item exported from China, many other goods were traded, as well as religions, philosophies, and various technologies. In addition to economic trade, the Silk Road was a route for cultural trade among the civilizations along its network (Elisseeff, 2001).

The Mongol expansion throughout the Asian continent from around 1207 to 1360 helped bring political stability and re-established the Silk Road. It also brought an end to the dominance of the Islamic Caliphate over world trade. The Mongols came to control the trade routes, and under their protection trade circulated throughout the region. They enlisted local people (traders, scholars, artisans) to help them construct and manage their empire. During the Mongol expansion, the Venetian explorer Marco Polo became one of the first Europeans to travel the Silk Road to China. His tales, documented in *The Travels of Marco Polo*, opened Western eyes to some of the customs of the Far East. He was not the first to bring back stories, but he was one of the most widely read. He had been preceded by numerous Christian missionaries to the East, such as William of Rubruck, Benedykt Polak, Giovanni da Pian del Carpine, and Andrew of Longjumeau.

Some studies indicate that the Black Death, which devastated Europe starting in the late 1340s, may have reached Europe from Central Asia (or China) along the trade routes of the Mongol Empire.<sup>[98]</sup> One theory holds that Genoese traders coming from the entrepot of Trebizond in northern Turkey carried the disease to Western Europe; like many other outbreaks of plague, there is strong evidence that it originated in marmots in Central Asia and was carried westwards to the Black Sea by Silk Road traders (Hansen, 2012).

[https://en.wikipedia.org/wiki/File:Travels\\_of\\_Marco\\_Polo.svg](https://en.wikipedia.org/wiki/File:Travels_of_Marco_Polo.svg)

It was the flow of ideas from China, which was then the foremost advanced and inventive nation, as well as the greatest trading nation in the period 1200 -1300, that contributed to development of Europe. The paper sets out to consider the impact of Chinese ideas and show how they advanced the societies of other nations. It is interesting that many Eurocentric historians have contested this flow of ideas and that the origins of many of the inventions had several different sources of origin. Littleton (1927) argues that double entry accounting was invented in Italy because the first records emerged there in 1299, which ignores developments in China. The compass is considered to have emerged in Europe, a claim that ignores developments in China (Glick, et al, 2005). But it is conceded generally that the inventions of printing, paper money and gunpowder are of Chinese origin.

Double entry accounting emerged in Italy around 1300 and a popular argument as to its emergence is that it was the product of the crusades, which accelerated the wealth and trading advantages of Italian cities (Littleton, 1927). Furthermore, the claim for the invention of double entry in Italy is supported by Littleton (1927). The essence of Littleton's case is that the Italian cities met seven preconditions necessary for emergence: the art of writing, arithmetic, private property, money, credit, commerce and capital (pp. 140-141). However, Liyanarachchi (2014) in the context of describing early accounting developments in Sri Lanka, points out that, such antecedents and social conditions by themselves do not necessarily lead to the emergence of the double entry method. This view is inconsistent with the claim advanced that certain antecedents would lead to the creation of double entry bookkeeping (Littleton, 1927).

During the time of the Crusades, Holzer (1984) observes that, "Trade with the East began and culminated in in such voyages as Marco Polo.

Holzer goes on to make the point that, “Some suggest double entry bookkeeping may have developed because Marco Polo had the opportunity to see a type of double –entry bookkeeping in action in China” (p. 5). Holzer (1984) further comments that Pacioli had disclaimed originality, merely putting down the practices of business, concluding, “It may be assumed that the practice of double entry accounting had ceased to be a jealously guarded secret” (Holzer, 1984, p. 26). Holzer’s suggestions are interesting although unsubstantiated, as what the paper attempts to show is that double entry evolved through time either by design, chance or necessity.

Evolution by chance is the weakest possibility but it is likely that various accounting practices were distributed by chance as traders met and share information and ideas. Each trader taking advantage of the ideas on offer. The Silk Road provided the avenue for such ideas to become distributed by chance encounters. To some extent other inventions, such as printing, paper money, gunpowder and the compass may have reached Europe by fortuitous encounters. Evolution by necessity is more likely as where economies became more sophisticated traders would have needed to seek systems of orderly record keeping to make sense of complexity. Necessity can explain why there may be various candidates as to the origins of double entry. Arguably, various centres along the Silk Road, Arabic, Indian or Chinese constructed accounting systems and borrowed from each other. Such borrowings from others provided for elements of design as traders dropped what was redundant and retained what was useful. Thus, given combinations of chance, necessity and design accounting systems evolved as economies and avenues of communication between economies became available.

What is interesting is that in the tenth and eleventh century Arabs had learned the secret of paper making from the Chinese. Moreover, by the eleventh and twelfth centuries the Arabs had introduced their numerals and papermaking into Islamic Spain. Double-entry bookkeeping was made possible by papermaking and Arab arithmetic (Holzer, 1984). Such factors are relevant to tracing the origins of double-entry bookkeeping as without paper and Arabic numerals, it doubtful that double entry would have replaced the form of single-entry with Roman numerals practiced at the time in England. It can be seen that the Silk Road besides being a trading route linking East and West it was also an information exchange channel as various traders met and formed networks. Quite what connections the merchant-venturer, Marco Polo, had can never be known but it is likely he had some and was during his time in China he was able via the Silk Road to maintain contact with his family merchant house.

Littleton's seven antecedents can be equally applied to support the origin of double entry among Arab States (Zaid, 2000); and India (Lall Nigam, 1986). Going further East much less research supports the claim of China as the cradle of double entry other than that of Fu (1971). However, the latter shows that accounting in its earliest forms was at a high stage of development as far back as the Chou dynasty (1122-256 BC). As all of the above claims to invention other than that of Italy, are circumstantial, the only direct evidence is of emergence, rather than that invention, and that comes from Florence around 1299.

The purpose of this paper is to further develop the claim of Fu (1971) with regard to China being one of the sources or inspirations for double entry accounting. It is granted that the basis of the argument in the paper is circumstantial and lacks the support of direct evidence. However, it is argued that the Chinese claim to be the source of double entry possesses as much, if more merit, than those researchers that have advanced the circumstantial claims of Italy, Arabia, and India (Littleton, 1927; Zaid, 2000; Lall Nigam, 1986). The point being that in tracing the origins of double entry it is not sufficient to treat as a brute fact that emergence is all and there is no more to be said. Many other human inventions have been traced by historians beyond the place of their emergence such as computers, atomic bombs, etc., as being the final products of several human endeavors taking place elsewhere.

## **Background**

The emergence of the 1299 Farolfi ledger causes researchers to assume that Italian invented double entry and that is the end of the matter. However, with regard to timing, Ste Croix (1981) claims, "There seems to have been no really efficient method of accounting by double entry or even single entry before the 13<sup>th</sup> century" (p. 114). This may have been true of Europe but in China prior to the 13<sup>th</sup> century a very sophisticated system of accounting was in use, which combined elements of both single and double entry practices (Aiken & Lu, 1998)

Based on the emergence of the Farolfi ledger in 1299, Ball (1960) and Chatfield (1968) maintain double entry was the invention of Florentine merchants. Although these claims are backed by a documentary primary source, the assumption of double entry accounting prior to 1299 is circumstantial. Researchers offer little by way of further explanation as to the circumstances of origin other than, as Littleton (1927) maintains, double entry accounting arose in the great trading cities of Italy because of their prominent trading and banking activities, which far surpassed the

rest of Europe. What is generally agreed is that, whether double entry came to Italy from the East or was the direct result of Italian commercial expansion, the emergence of double entry bookkeeping occurred around 1300 (Gleeson-White, 2011).

### **Double entry records in Italy**

The great problem with tracing the source of double accounting is the lack of primary sources before those which emerged from Florence in the late 13<sup>th</sup> century. The earliest extant accounting records that follow a double-entry method in Europe come from Amatino Manucci, a Florentine merchant at the end of the 13th century. Manucci was employed by Giovannino Farolfi & Company and the firm's ledger of 1299-1300 provides evidence of double-entry bookkeeping. The Farolfi ledger exhibits fundamental features of double entry in that it relates to oppositions: increases and decreases in cash and inventory; debts by or to other merchants as well as assets and liabilities. Some sources suggest that Giovanni di Bicci de' Medici introduced this method for the Medici bank in the 14th century.

However, the oldest discovered record of a complete double-entry system is the *Messari* (Italian: Treasurer's) accounts of the Republic of Genoa in 1340. The *Messari* accounts contain debits and credits journalised in a bilateral form, and include balances carried forward from the preceding year, and therefore enjoy general recognition as a double-entry system. By the end of the 15th century, the bankers and merchants of Florence, Genoa, Venice and Lübeck used this system widely.

Luca Pacioli, a Franciscan friar and collaborator of Leonardo da Vinci, first codified the system in his mathematics textbook *Summa de arithmetica, geometria, proportioni et proportionalità* published in Venice in 1494.<sup>[7]</sup> Pacioli is often called the "father of accounting" because he was the first to publish a detailed description of the double-entry system, thus enabling others to study and use it. However, some scholars contend that Benedetto Cotrugli wrote the first manual on a double-entry bookkeeping system in his 1458 treatise *Della mercatura e del mercante perfetto*. It is interesting, in the context of this paper that in medieval Europe, as with everything, double-entry bookkeeping had theological and cosmological connotations, recalling "both the scales of justice and the symmetry of God's world".

### **The Arab case for inventing double entry**

Lieber (1968) suggests that Italian traders obtained double entry from their Arab counterparts. Supporting this contention, Heaps (1895) points out that Europeans gained knowledge of algebra from Arabia and also gained bookkeeping from Arabian merchants well before the 13<sup>th</sup> century (Macve, 1994). Littleton (1927) sets out the necessary conditions for the development of double entry and it is clear that these necessary conditions pre-dated those Italy. In other words, the centres of commerce may have moved to Italy from Islam. Zaid (2000) claims further that Islamic states used accounting practices that directly led to double entry and Zaid (2000) to support his claim provides some examples. However, Nobes (2001) while conceding that several features of pre-double entry were used in the Islamic world before they were used in the West, maintains that there is still no direct evidence that double entry was first developed outside Italy. But, Nobes (2001) argument serves to support the case that the brute fact of emergence is sufficient for the purposes accounting history and relegates by implication as trivial the quest for the tracing of origins.

Notwithstanding, the argument that only direct evidence is admissible, Zaid (2004) makes the further circumstantial point that accounting systems were developed in compliance with Sharia law. A valid point as in a religious age as all behaviors and systems, including trade and finance, were influenced by some aspect of religious belief. Zaid (2004) adds the further point taken from Ball (1960) that, “We can hardly suppose that the Italian merchants were ignorant of the methods of keeping accounts of their best customers” (pp. 208-209). That is connections along the Silk Road were a necessary feature among traders using the road.

Past historical records show that since AD 624 Muslim civilizations adopted a comprehensive accounting, reporting and auditing system that applied a form of double-entry bookkeeping. This is in particular draws from the documented records of Muslim scholars, such as Al Khawarizmy and Al Mazendarany in AD 976. Albraiki (1990) research of tax records show that from the 9<sup>th</sup> century there developed bilateral accounts and dual entries and a systems of balancing accounts.

Nonetheless, this Muslim system fell short of developing trial balances and balance sheets. Solas and Otari (1994) focus on accounting practice during the Kubla Khan dynasty (1120-1350), which leads them to observe that the rudiments of double-entry accounting were practiced and developed independently from practices in the West. However, in spite of these circumstantial findings, Nobes (2001) acknowledges that while it



has been clear that several features of pre-double-entry accounting were used in the Islamic world before they were used in the West, there is no evidence that double entry was first developed outside Italy.

### **The Indian case for inventing double entry**

Scorgie (1990) maintains that the evidence from many secondary sources is that rulers and traders in India employed expert accountants to manage and control their financial affairs. For example, under the sultanate of Delhi expert accountants were employed from 1206. (Srivastava, 1972). These accountants kept daily ledgers to record receipts and payments and produce a statement of balances at the end of each revenue year. However, as Scorgie (1990) points out that such sources do not suggest the operation of a double entry system. Nonetheless, it is relevant to note that Marco Polo mentioned this ability but, not unsurprisingly given his interest in the more romantic and bizarre aspects of his travels for popular consumption, did not go into detail (Scorgie, 1990).

Yamey(1956) mentions that an eighteenth century British resident in India, Alexander Hamilton, claimed in a book review that Indian traders had been using double entry for centuries. But, this suggestion Yamey (1956) rejects for lack of documentary evidence. Nigan (1986) further contends that an early form of double entry was transported from India to Venice, though the resemblance to later forms of double entry is tenuous. Scorgie (1990) concludes that the system Nigan (1986) refers to draws on evidence provided by Hamilton, that Indian traders operated a cash book double entry system requiring two entries for each transaction rather than the sort of system described by Pacioli. Finally, Lall Nigam (1986) makes the point that because Indian traders frequented European ports and met their trading counterparts, it is more likely that their accounting methods were copied in Europe rather than the reverse occurring.

### **The Chinese case for inventing double entry**

The circumstantial case for double entry arriving in Italy via trading routes such as the Silk Road is strong. Around 1200, as Marco Polo testifies (Latham, 1958) China was the greatest trading nation in the world and its merchants used paper money facilitated by the invention of block printing. The municipal authorities in China had adapted a system of vouchers known as “flying money” to enable merchants to transfer money across the vast country with confidence. These “Bills of Exchange” became known to Muslim merchants arriving in China.

Lieber (1965) suggests this is how Persians became aware such drafts could be used for trade. Furthermore, in the latter part of the 13<sup>th</sup> century European merchants started to make use of such informal payment orders and this became widespread by the 14th century (Lieber, 1965). That the origins of such merchant payment practices came originally from is hard to deny.

Thus, although it is widely accepted that double entry was invented in Italy during the thirteenth century (de Roover, 1956; Peragallo, 1983; Parker, 1984), Lin (1992) argues that it is “insufficient to assert that double entry bookkeeping was solely invented in Italy because there is evidence to suggest that a double entry method was in use in China in the sixteenth century” (p. 104). Although, it could be that information flowed eastwards along the Silk Road via Arab, Indian and Chinese merchants, it is likely that accounting systems evolved in separate places and that in the hands of merchants from many countries various forms of double entry gradually took shape.

Gao and Handley-Schachler (2003) explain how Chinese accounting was influenced by Confucianism and Taoism. Confucianism which was strongly held around 900 – 1200 considered material interests to be in direct conflict with the dictates of virtues of *Wu Lun* (Gao and Handley-Schachler, 2003). The Confucian classification of society ranked business at the lowest level, such that merchants and private accountants were stipulated by laws to be of the lowest social class (Gao and Handley-Schachler, 2003). Thus, the dearth of merchant accounting records from this period can be explained by such ordinances. Official archives of the period held sacred texts and officials would not contaminate their holdings of sacred texts with that of merchant accounts.

As there was a class difference between government accountants and private accountants, there is reason to suppose that private accounts may have been structured differently and were more inventive than government accounts (Gao and Handley-Schachler, 2003). Chinese government officials have used the three column method of accounting since the western Zhou dynasty 1066BC – 771BC. The three-column system evolved into the four-column method during the Tang dynasty (AD618-907) and comprised the old balance brought forward plus the new receipts less payments to find a new balance to be carried down (Gao and Handley-Schachler, 2003). Aiken and Lu (1993) describe this system as a breakthrough from single entry to double entry. In this conclusion there is some merit. During this time Aiken and Lu (1998) show how the

cash, purchases, sales and other diaries resemble journals and how these entries were transferred to their respective ledger accounts.

Moreover, Gao and Handley-Schachler (2003) explain the three-column method as being a by-product of Daoism beliefs and the concept of balance known as Yin and Yang. That is the three columns represent money received, payments and balance respectively. With belief in Yin and Yang being widely held, it is not unlikely these beliefs influenced record keeping systems. The problem is that such the three-column method was a product of government record keeping and the assumption is that merchants adopted the system of their superiors – the government officials. However, in England during the same period, merchants did not follow the record keeping practices of the government officials but adapted single entry accounting to suit their own needs (Hooper, 1996). Aitken and Lu (1993) point out that merchants needed to calculate profit and loss and they quote Wei (1984) to show how account books were kept for purchases, sales, expenses and profit and loss. Also merchants because of need, were beginning to record receivables and payables more clearly. The Government accounts did not need such information.

In the Tang and Song dynasties (618 – 1279) there appeared a four-column method that produced a form of numerical equation (balance brought down + receipts = payments + balance carried down) that some see as (Lin, 1992) the earliest elements of the concept of double entry. Clearly, while not taking the explicit form later found in Italy, there is in such an equation an early form of double entry. Moreover, there was a form of double entry for non-cash transactions; if silk (inventory) was used to pay an account payable then it would be recorded as a decrease in inventory and a disbursement in the form of a decrease in account payable (Aiken and Lu, 1998). For these reasons Lin (1992) maintains that the underlying principles of this form of Chinese double entry had some similarities to Italian double entry that developed around the end of the 13<sup>th</sup> century.

Given such a sequence of developments in various places, some would sympathize with Aiken and Lu's (1992) observation, drawn from the work of Foucault (as cited by Rabinow, 1984), that Chinese cultural traditions have been marginalized by Euro-centric historians and that Euro-centricity raises the bar for tracing the origins of double entry beyond Europe.

## **Daoism**

Several accounting researchers have drawn attention to the influence of religion on accounting practice and the secular tendency to think of religion as nothing more than religion (Hamid et al, 1993; Hofstede, 1983; Gray, 1988). From a Eurocentric perspective Aho (2005) links the practice of confession with double entry accounting. He argues that it is more than coincidental that the introduction of compulsory confession in 1215 and the appearance of double entry soon after are meaningfully related. Aho (2005) quotes the Bible's Book of Revelations (Rev 20 - 11 – 15) where each person's credits and debits are entered twice in the Book of Accounts.

With respect to religion and double entry, the Daoist concept of yin-yang has cosmological connotations that would seem to support double entry thinking. The concept of yin-yang describes how opposite or contrary forces are actually complementary, interconnected, and interdependent in the natural world, and how they give rise to each other as they interrelate to one another. Many tangible dualities (such as light and dark, fire and water, expanding and contracting) are thought of as physical manifestations of the duality symbolized by yin-yang. This duality underlies many branches of classical Chinese science and philosophy, as well as being a primary guideline of traditional Chinese medicine and a central principle of different forms of Chinese martial arts.

Yin and yang can be thought of as complementary (rather than opposing) forces that interact to form a dynamic system in which the whole is greater than the assembled parts. Everything has both yin-yang aspects, (for instance shadow cannot exist without light). Either of the two major aspects may manifest more strongly in a particular object, depending on the criterion of the observation. The circular yin-yang symbol shows a balance between two opposites with a portion of the opposite element in each section. Aho (2005) also cites this balance of opposites as having a religious meaning and the confession becomes a way of balancing the books.

In [Daoist](#) metaphysics, distinctions between good and bad, along with other dichotomous moral judgments, are perceptual, not real; so, the duality of yin and yang is an indivisible whole. Gao and Handley-Schachler (2003) point out that Chinese accounting developed without clear distinction between accounts but balance was strongly emphasized. The Four Feet Method or Heaven and Earth Matching Method is evidence of this concept of balance between incomes and disbursements. Kuasirikin and Constable (2010) also draw attention to the importance of balanced accounts and the publication of balance sheets. But, as Gao and

Handley-Schachler (2003) point out Chinese temples and innumerable other heritage documents were considered sacred, while commercial activities and records of transactions had no place within sacred archives. The result is that in contrast to the West where the religious arena could be a site of commercial activities, in China archives were forbidden as storage sites for commercial documents.

### **Marco Polo**

Marco Polo was born between September 15 and 16, 1254

In 1271, Marco Polo (at seventeen years of age), together with his father, and his uncle set off for Asia on the series of adventures that Marco later documented in his book. In 1276, they reached the seat of Kublai Khan in present day Beijing, China. Kublai Khan received the family with hospitality and asked them many questions regarding the European legal and political systems Latham, 1958).

Marco Polo returned to Venice in 1295, 24 years later, with many riches and a fortune in gemstones. He had travelled almost 15,000 miles (24,000 km). As part of a merchant family the young Marco impressed the Chinese Emperor with his ability to speak Mandarin and read Chinese characters. It may be assumed that he would have been interested in how Chinese merchants traded and kept records (Latham, 1958). Indeed, far from China being backward Polo declares that Chinese traders are the busiest and most advanced in the world. Moreover, it may also be assumed that during his 17 years in China he would have sent via various letters and reports back to Italy, as Latham (1958) maintains.

At the time of his return, Venice was at war with Genoa and he was captured by Genoans in a skirmish in 1296. He spent several months of his subsequent imprisonment dictating a detailed account of his travels to a fellow prisoner, Rustichello da Pisa who incorporated tales of his own as well as other collected anecdotes and far-fetched tales about China. The book written by Rustichello soon spread throughout Europe in manuscript form, and became known as *The Travels of Marco Polo*. It depicts the Polos' journeys throughout Asia, giving Europeans their first impression of the Far East, including China, India, and Japan. The book was popular because Rustichello furnished these impressions with wild fantasy to titillate the popular imagination as to what distant lands must be like. Polo was finally released from captivity in August 1299

Rustichello's intention was to write what would be in today's language, a best-seller, and as such he preferred to stress the fantastic, bizarre and the

romantic (Latham, 1958). As such, the fantastic and bizarre accounts of people - which were staples of medieval travel literature - were featured at the expense of more realistic depictions of ordinary life in China.

## **Discussion**

The paper advances the claim put forward by Fu (1971) that China, India and Arabia are all likely sources for the evolution of double entry accounting. Littleton's antecedents can be interpreted not to advance the claim of Italian invention but to show that the Italian cities were principal trading centres at the end of a long "Silk Road" stretching through from China. Gray (1878) refers to great antiquity of the Chinese Empire that has survived for 4,000 years. Gray (1878) considers China to be the greatest compact country in the world and the greatness and extent of this empire especially as a fount of industry and invention is also remarked on by Marco Polo. Thus, the argument that necessity is a driver of evolution directs the search for origins to the more developed economies at the eastern end of the Silk Road, where traders coping with increasing complexity evolved systems to cope with a variety of commodities and currencies. Chance is another driver of evolution. and the Silk Road provided chance encounters among traders, whereby ideas could be shared.

Evolution progresses by necessity and chance and design has no scientific warrant in such a process (Baggott, 2012). However, invention implies design and if, as some accounting text books maintain, the Italians invented double entry, (Gleeson-White, 2012) then accounting becomes an art rather than a science, which evolves through observations (Baggott, 2012). Accounting seems to occupy an ambiguous boundary between art and science. Clearly, subsequent to the emergence of double entry progress from Luca Pacioli to the International Accounting Standards Board has been driven by design. But, it is argued that chance and necessity were the early drivers of accounting evolution.

The problem with tracing the origins of double entry based on observations is that the only direct documentary evidence available is the Farolfi ledger in 1299. Nobes (2001) while recognizing other claims concludes only the emergence of direct evidence is sufficient as an explanation of emergence. But, many accounting historians argue on circumstantial grounds that double entry was, in part, developed elsewhere (Zaid, 2000, 2004; Lall Nigam, 1986; Ball, 1960; Lieber, 1968, Heaps, 1895; Scorgie, 1990; Albraiki, 1990; Solas and Otari, 1994; Aiken and Lu, 1993; Yamey, 1956; Lieber, 1965; Lin, 1992; Wei, 1984).

This paper also makes the latter case in tracing the origins of double entry. Is it sufficient to accept that the condition of full emergence as explanation of any invention or evolution? If the affirmative is the case, as Nobes (2001) seems to imply, then Darwin's theory of origins is unnecessary and superfluous to explain human emergence – it is just a brute fact that humans emerged in Africa – so no further inquiry of origins is required. Likewise, one could argue America invented computers and nuclear weapons because these devices emerged there, but, in fact, they were the end product of developments made elsewhere – respectively going back to Charles Babbage (computers) and Niel Bohr (physics) and many others from various countries.

The concern of this paper is to trace the likely origins and this brings into consideration what Littleton called likely “antecedents”. Prior to 1299, there is a strong case for arguing that such antecedents applied to China being the most developed country with a series of strong imperial governments. Marco Polo found China to be the greatest trading country in the world employing paper money, block printing and operating a system of “flying money, to enable merchants to make monetary transfers at a distance. It is likely that merchants along the “Silk Road” mixed with each other and shared ideas and can explain the subsequent Italian use of bills of exchange. It is also likely that knowledge of gunpowder, paper as well as Arabic numerals reached Europe via merchants travelling the Silk Road.

Aiken and Lu (1993) found that entries made in Chinese accounts prior to 1299 contain many of the features of double entry. The problem with examining the records kept by Chinese merchants is that archives of the period were exclusive to sacred texts so very few remain. How far these early features were further refined is unknown but Marco Polo was impressed by the sophistication of Chinese merchant practices. There is a coincidence of dates that the first ledger appears a few years after Marco Polo's return to Italy. Also, as being of a merchant household it is likely that during his long stay in China, Marco Polo sent letters via merchants along the Silk Road to his family in Italy. Although the popular book of his travels does not refer to the record keeping of Chinese merchants it does not mean he was not interested in their practices as their practices may have been useful to his family. Another reason to suspect the Chinese of this period to be interested in double-entry is because of the popularity of Daoism at this time. Central to Daoism is the concept of Yin-Yang with its circular black and white “S” shaped symbol to represent interlocking opposites. Such religions held sway over the minds of men and Daoism and governed their behaviors and practices.

To conclude, the Silk Road was a channel for goods and ideas from the East to Europe, and many of these ideas acquired by chance and accepted by necessity were subjected to further development. It was a route for information as well as tradable goods. While acknowledging that double entry emerged in Italy, it has to be also acknowledged that Italian cities were fortunate in being in terms of time and place to be at the European end of the Silk Road. However, while emergence is a brute fact not to be disputed, any study of origins should cast a wider net.

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